of the problem is demonstrated. When a man learns that in the long run it will cost him less to have his wife receive proper attention in labor, avoiding serious lacerations, and promptly repairing those which are inevitable, he will be willing to pay a fair price for such service. It is cheaper than a badly conducted confinement at a cheap rate and the expense of a secondary operation by a surgeon or gynecologist later. The saving of infant life through competent obstetric work does not always appeal to those who must struggle to make a living. This is, however, a question of national importance, and in other countries has received the careful attention of governments and philanthropists.

GYNECOLOGY

UNDER THE CHARGE OF

JOHN G. CLARK, M.D.,

PROFESSOR OF GYNECOLOGY IN THE UNIVERSITY OF PENNSYLVANIA, PHILADELPHIA.

Vaginal Hysterectomy Under Local Anesthesia.—RUGE (*Zentralbl. f. Gynec.*, 1912, xxxvi, 561) believes that, while ordinary infiltration anesthesia has a great field of usefulness in gynecology as in other branches of surgery, that produced by blocking the nerve-trunks at a distance from the field of operation is preferable, since the appearance and consistency of the tissue in which the operation is to be performed is not altered. He has devised the following technique for the performance of complete vaginal hysterectomy, and other major vaginal operations. After disinfecting the vagina the long, thin needle of a "Record" syringe is introduced into the parametrial tissue to one side of the cervix to a depth of 4 to 5 cm., being directed in a somewhat lateral direction, in order to strike the nerve trunks before they have undergone their ultimate subdivisions. If the needle is introduced slowly, most vessels, and any coils of intestine with which it may come in contact, will be pushed aside and not injured. Should a vein be punctured, however, blood will begin to flow out of the neddle, which must then be drawn back a little, and advanced in a slightly different direction. When the needle has been satisfactorily introduced the 10 c.c. syringe is attached, and, gradually withdrawing the needle, the solution injected. The process is repeated on the opposite side; then at two points in the anterior and two in the posterior vaginal vault similar injections of 3 to 5 cc. of fluid are made. In the anterior vaginal vault it is necessary to introduce the needle 2 to 3 cm. deep, but in the posterior only just through the mucosa. As injection fluid Ruge uses a 1 per cent. novocain solution, to each 100 c.c. of which 5 drops of a 1 to 1000 adrenalin solution are added. It is sterilized by boiling immediately before use. The amount used is about 40 c.c., but it is practically non-toxic, and much larger amounts could be employed with impunity. The vagina is rendered anesthetic by swabbing it out with a sponge covered with cycloform powder. To eliminate pain from pulling on the bladder, 5 c.c. of the injection fluid are introduced into it through the catheter. It is necessary to wait twenty to thirty minutes for the anesthesia to become effective, but it then lasts one and a half to two hours. Ruge reports having recently operated in this manner on two patients, neither of whom felt anything during the entire operation, not even the introduction of large gauze pads to hold back the intestines, nor seizing the parietal peritoneum with toothed forceps. No morphine, scopolamine, or other narcotics were given. Ruge considers this method just as satisfactory as lumbar anesthesia, and far less dangerous.

Lymphatics of the Clitoris.—Rouvière (*Ann. de Gyn. et d'Obstet.*, 1912, xxxix, 273) has been struck by the fact that at times, following extirpation of the clitoris for carcinoma, recurrence takes place in the small pelvis directly, without involvement of the inguinal or retrocrural glands, an occurrence which should be impossible if the classical description of the anatomy of the lymphatics of this region is correct. He has therefore undertaken some investigations into the lymphatic supply of the clitoris, and has been able to demonstrate by injection methods the occasional occurrence of lymph vessels which establish a direct connection between that organ and the hypogastric glands in the pelvis—a finding similar to that of Küttner with regard to the penis. He was not able to find these direct lymph channels in all cases, this being due, he thinks, rather to an irregularity in their occurrence than to any fault in technique. He considers, however, that the demonstration that they do occur in a certain number of cases explains, in part at least, the extremely unfavorable prognosis that it usually associated with carcinoma about the clitoris, since in such subjects it is almost impossible to excise thoroughly the entire tributary area.

Composition of the Menstrual Fluid.—The results of careful chemical analyses of the fluid obtained from 10 cases of hematocolpos due to atresia are reported by Bell (*Jour. Obst. and Gyn., Brit. Emp.*, 1912, xxi, 209). Urea was never found; mucin, on the other hand, was always present in large amount, arising from the cervix and vagina. Blood, estimated from the amount of iron present, formed on an average somewhat less than 50 per cent. of the fluid. Fibrinogen and fibrin-ferment were always absent; to this fact is due, Bell believes, the non-coagulability of menstrual fluid, and not to the presence of mucin or of lactic acid, as has frequently been taught. He believes that this lack of fibrinogen and fibrin-ferment in the menstrual fluid is the result of some vital function of the healthy endometrium, which destroys or extracts it, since there is nothing in the uterine or vaginal secretions to destroy the fibrin-ferment, or to prevent clotting of the blood if it were present. This Bell has shown by adding to normal sodium fluoride solution an equal quantity of hematocolpos fluid, together with fibrin-ferment, obtaining a good clot within ten minutes. In all the specimens examined lactic acid was found, although all were sterile but two, in which there were some colon bacilli, probably due to contamination during or after removal. In no case were Döderlein's bacilli found. Bell concludes, therefore, that the acidity of the vagina is not due to this bacillus, but to the lactic acid, which is formed by the action of some cellular enzyme on the mucin present. The calcium content of the hematocolpos fluid was invariably found to be high, amounting in some cases to six times or more that of normal blood.

Arsenic as a Factor in Menstruation.—Some rather interesting, even though as yet not entirely conclusive investigations into the arsenic-storing function of the uterine glands have been carried out by Imchanitzky-Ries and J. Ries (*Münch. med. Woch.*, 1912, lix, 1084). These authors have demonstrated, by means of the Marsh and Gutzeit tests, the presence of small quantities of arsenic in the endometrium during menstruation. In the post-menstrual stage arsenic is entirely lacking, to reappear later in the interval, being present in the largest amount just before the onset of menstruation. In the endometrium of a woman, aged sixty-five years, they were unable to find any traces of arsenic. The theory of the investigators is that arsenic, a considerable quantity of which is taken in with the daily food, is stored up in the uterine glands, and is given off in the mucoid secretion which is eliminated by them during the pre-menstrual stage, but which remains blocked up in the tortuous glands until it is discharged during menstruation. That menstrual fluid does actually contain arsenic has been demonstrated by Gautier, who found that about 0.15 mg. is given off in this way on an average at each menstrual period. It has been frequently demonstrated that arsenic given therapeutically to men can be recovered in the urine; in women, however, this is not the case, a futher confirmation, the authors believe, of their theory that it is stored in the uterine glands. They have found that a much larger quanitty of arsenic is always present in the tissues of fetuses and newly-born animals than in those of adults; it apparently has the same importance for the growth of the fetus as does, for instance, phosphorus. They believe that during childhood, while active growth is going on, the arsenic received from the mother, and that later taken in with the food, is utilized in body-building. At puberty, however, an excess of arsenic begins to accumulate; the uterine glands begin to functionate, and to store up this excess, until a sufficient concentration is reached for it to act as a poison. The entire endometrium is affected, the ordinary histologic picture of arsenic poisoning being produced—desquamation of epithelium, fatty degeneration, transudation paralysis of vessel walls, with dilatation of the vessels and escape of blood. In order to determine if the presence of arsenic in the endometrium would have any inhibiting effect on impregnation, the authors investigated the action of living spermatozoa when brought in contact with arsenic solutions on the warm stage of the microscope. They found to their astonishment that such solutions up to 1 per cent. strength (much stronger than is ever present in the endometrium) not only do not have any deleterious action on spermatozoa, but rather seem to increase their activity. In conclusion, the authors state that they consider their experiments so far as suggestive rather than conclusive, and that they merely wish to indicate that this arsenic-storing function of the uterine glands may be one of the numerous factors concerned in the production of the complex phenomenon of menstruation.